

Patent Abstracts of Japan

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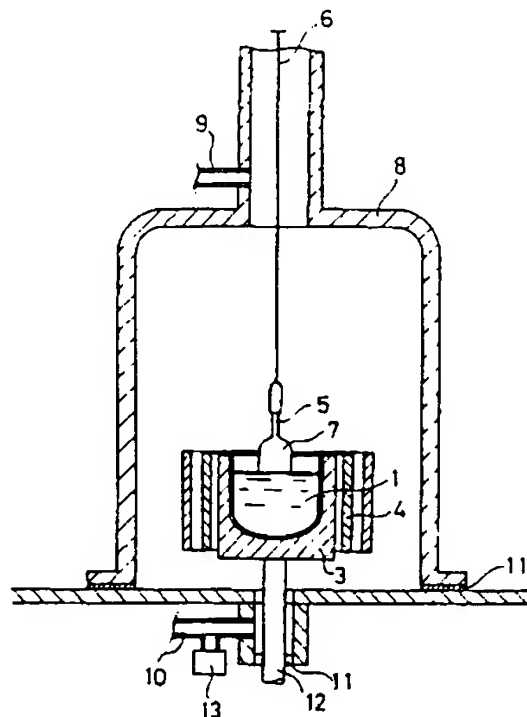
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TITLE : PROCESS FOR CHECKING LEAKAGE
OF PULLING DEVICE FOR PULLING
SILICON SINGLE CRYSTAL



ABSTRACT : PURPOSE: To execute leak check of a pulling device of a silicon single crystal simply by determining the amt. of leakage of oxygen corresponding to the amt. of pulling from a difference between the amt. of leaked oxygen during maintaining in vacuum state and the amt. of leaked oxygen in the condition of flowing inert gas.

CONSTITUTION: After maintaining a pulling chamber 8 at a degree of vacuum by sucking with a vacuum pump to a fixed range, the vacuum is adjusted to can 10-20Torr by feeding inert gas from a feeding port 9, the melt of silicon is prepd. with a heating device, and a single crystal of silicon is pulled while dipping a seed crystal in the melt. In this stage, decrease of yield of the silicon single crystal and deterioration of the quality of the single crystal may not be avoided by only checking leakage before commencement of pulling because of increase of leakage of oxygen accompanying the change of pressure in the furnace, and oxidation of crucible and the heater and mixing of the oxidized product in the silicon single crystal. To eliminate such disadvantage, the sealing of the furnace should be improved or the amt. of feed of the inert gas is increased and the increased amt. of the inert gas should be sucked with the vacuum pump, when the leakage of oxygen is increased. The amt. of the leaked oxygen is measured just before pulling by attaching an oxygen sensor.

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